CONTINENTAL SCREU SCREU CONVEYOR Bulk Material Handling Equipment From Concept to Completion

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Continental Screw Conveyor has the experience and manufacturing capability to take bulk material handling equipment from concept to completion. Continental has been building bulk material handling equipment since the 1920s, working at the current location in Saint Joseph, MO since 1976. The facility has 60,000 square feet of manufacturing space with a comprehensive machine shop, large fabrication section and versatile paint/finish area, along with engineering and administrative offices. The main focus is the design and manufacturing of industrial duty bulk material handling equipment, particularly screw conveyors, bucket elevators and belt conveyors. The approach from the start is building equipment to fit a particular application instead of having the customer compromise their requirements to fit standard equipment. With equipment installed around the world, Continental continues to take the extra step to ensure that the right equipment at the most cost-effective price is offered to complete each individual job.



NOTE: Environmental as well as many other conditions vary with each installation. As a result, the information included in this catalog is intended merely as a guide to equipment selection. Continental Screw Conveyor does not warrant that adherence to these guidelines will result in proper selection, manufacture or maintenance of conveyor equipment. Unless there are specific written specifications or recommendations pursuant to a written contractual commitment, Continental Screw Conveyor hereby disclaims all responsibility for any equipment and/or system malfunction, any violations of law, property damage, personal injury or any other damages resulting from equipment and/or system selection, design, installation, maintenance or operation carried out by the contractor or user.

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SCREW CONVEYORS

Screw conveyors are designed to have material loaded into them by a controlled feed, receiving a uniform and continuous amount of product. The unit conveys the material to the discharge at a consistent rate. Advantages of using screw conveyors include the ability to have multiple inlets and discharges, a low number of moving parts and conveying material in a dust tight manner. Continental specializes in building heavy duty units for particular applications, designing each unit to meet specific requirements.



SCREW FEEDERS

Screw feeders are designed to be flood fed, so that regardless of the amount of material in a hopper above the inlet the volumetric output rate will remain constant. It is this trait that makes screw feeders a critical part of a system, as they set the rate of material flow for the equipment downstream. A series of independent screw feeders can be used to unload a large collecting tank or silo. This arrangement allows for varied material rates to be pulled from different storage areas and improved reliability as one unit can be isolated for inspection/maintenance without shutting down the rest of the system. The alternative is to use a multiple screw unit which feeds from a wide area while maintaining a low stack up height and requiring fewer drives.



SCREW CONVEYOR OPTIONS

Material of	Units can be built from carbon steel, various grades of stainless steel,
Construction	aluminum and other alloys.
	Used to sense the operating condition or speed of the unit,
Safety	mounted to read an external shaft or sense through the trough wall to
Switches	detect screw movement within the unit. Limit switches are standard on
	drop bottoms and cover mounted inspection doors.
	Depending on factors such as material handled and temperature,
Hanger	hanger bearings in units may be engineered nylon, polyethylene, wood or
Bearings	hard iron. For particular applications more specialized non-stock hanger
	bearings are available such as ceramic, Rulon and Stellite.
Access	Inspection ports on covers and drop bottoms on troughs are common
Doors	options for equipment observation and maintenance. Supplied with
	safety grates and limit switches for operator safety.
Shaft	Seals for drive and tail shafts can range from common wastepack and
Seals	packing gland seals to elaborate mechanical seals. Factors in selecting
	the correct seal include material handled, temperature and angle of incline.
Weld	The finish of the interior welds of a unit will range from standard wire
Finishes	brush cleaning to a food grade level with a high degree of polish and no
	pits or crevices.
	The style of the drive may be selected by the customer, with options
Drives	such as shaft mounted reducers, direct drive and chain and sprocket
	arrangements as some of the possibilities.
Troughs	Standard U-trough, flared and rectangular with angle or formed flanges.
	Options include external jackets for heating and cooling along with
	drop bottom sections for easier maintenance on units.
Covers	Available in different material thicknesses in flat, flanged and hip roof
	designs. In special applications plexiglass sections may be used for
	observation of unit interior in operational state. Can be secured using
	bolting, screw clamps, spring clamps and toggle clamps.
Hardsurfacing	Available on perimeter edge of flights, faces of flights and on screw
	section pipe. Applied by automated plasma transfer arc system,
	hardsurfacing material is fused with base material to increase service
	life of screw section. Commonly used in applications with glass cullet,
	gypsum, flyash and other highly abrasive materials.

SCREW SECTION STYLES



Standard Full Pitch

Used for conveying material horizontally or on slight inclines.

Half Pitch

Used in screw feeders, also in conveyors where material is being conveyed up an incline.

Double Flight Full Pitch

Used in conveyors where an even discharge of materials is required.

Ribbon

Used in conveyors to convey sticky materials.

Cut

Used in conveyors where mixing materials is desired.

Cut and Fold

Used in conveyors where high levels of mixing materials and increased retention time is desired.

Varied Pitch

Used in screw feeders, short pitch below inlet, full pitch beyond to allow material loading to drop.

Cone with Consistent Pitch

Used in screw feeders where an even loading across the inlet length is desired.

Cone with Varied Pitch

Used in screw feeders where a specific loading across the inlet length is desired.

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CENTRIFUGAL ELEVATORS



Centrifugal bucket elevators are used to handle fine free flowing materials. The buckets travel at speeds high enough to discharge material by centrifugal force as they pass around the head sprocket/pulley. Casings can be made from carbon steel, stainless steel and other harder materials as required by the application. The main advantage of a centrifugal elevator over a continuous elevator is the ability to dig out of the boot, allowing for a lower feed point which can reduce pit costs. The two primary types of centrifugal elevators are chain and belt. Chain elevators will handle the nonabrasive materials while belt elevators will handle more abrasive material as long as there are no slivers or sharp pieces. Design options for the units include various drive configurations, internal or external take-ups along with molded or fabricated buckets. Maintenance options include service platforms, rest platforms and access ladders with cage, all which meet OSHA guidelines. Materials handled by centrifugal elevators include bentonite, borax, cement, coal, coke, glass batch, gypsum, lime, salt, sand, sugar and other free flowing materials where product degradation is not a problem.

CENTRIFUGAL BUCKET ELEVATOR CAPACITIES

CHAIN ELEVATORS		BELT EI	EVATORS
MODEL	CAPACITY	MODEL	CAPACITY
SC6420	288 CFH	SB6420	288 CFH
SC8524	614 CFH	SB8524	614 CFH
SC10624	1,051 CFH	SB10624	1,051 CFH
SC12730	1,768 CFH	SB12730	1,710 CFH
SC14730	2,138 CFH	SB14730	2,070 CFH
SC16824	2,550 CFH	SB16824	2,652 CFH
SC16830	3,160 CFH	SB16830	3,060 CFH

Key To Elevator Models

Style - Bucket Width - Bucket Projection - Pulley/Sprocket Diameter SC = Centrifugal Chain

SB = Centrifugal Belt

CONTINUOUS ELEVATORS



Continuous bucket elevators are used to handle heavy materials with large lumps. The buckets travel at lower speeds to allow for minimum material degradation and reduced wear on equipment. The main advantages of a continuous elevator over a centrifugal elevator is the large lump size capacity and the gentle manner in which the material is conveyed. In both chain and belt versions of the continuous elevator the backside of a bucket helps form the discharge chute for the following bucket. Design options for the units include various drive

configurations, internal or external take-ups along with molded or fabricated buckets. Maintenance options include service platforms, rest platforms and access ladders with cage, all which meet OSHA guidelines.

Materials handled by continuous elevators include aluminum chips, aluminum oxide, baking powder, pelletized carbon black, charcoal, cement, coal, cork, gypsum, lime, limestone, pumice, salt, slag, light soda ash and other materials that have low densities and are sensitive to product degradation.

CONTINUOUS BUCKET ELEVATOR CAPACITIES

CHAIN E	LEVATORS	BELT EI	LEVATORS
MODEL	CAPACITY	MODEL	CAPACITY
CC8520	675 CFH	CB8520	675 CFH
CC10520	842 CFH	CB10520	842 CFH
CC10724	1080 CFH	CB10724	1,080 CFH
CC12724	1,293 CFH	CB12724	1,293 CFH
CC14724	1,518 CFH	CB14724	1,518 CFH
CC14824	1,815 CFH	CB14824	1,815 CFH
CC16824	2,080 CFH	CB16824	2,080 CFH
CC18824	2,340 CFH	CB18824	2,340 CFH

Key To Elevator Models Style - Bucket Width - Bucket Projection - Pulley/Sprocket Diameter CC = Continuous Chain CB = Continuous Belt



BELT CONVEYORS

Belt conveyors are used to move large amounts of material using a minimal amount of horsepower. These conveyors can be provided in sizes from small capacity 18" feeders with a short single welded channel frame assembly up to high capacity 48" wide conveyors several hundred feet long with 20'-0" or 40'-0" truss sections.

Continental offers the two most common types of construction, channel frame and truss frame. Channel frame conveyors are built with 6", 8" and 10" channel frame and handle spans ranging from 15 feet to 20 feet depending on conveyor width. Truss frame conveyors allow for longer spans and larger widths, giving the capability to handle higher capacities. Trusses are available in 24" to 48" depth for standard units all the way up to 60" depth for high capacity units with wide belts.

In addition to these standard construction belt conveyors Continental offers several specialty type conveyors. Examples of these include flexible sidewall conveyors in inclined, 'Z' and 90 degree configurations, along with slider belt conveyors with stainless steel and UHMW slider beds. High inclined cleated belt conveyors for moving free flowing material in near vertical arrangement are also available with a wide variety of cleat designs and arrangements.

Standard conveyors are typically open on the carry and return side but covers are available. The units can be fitted with full radius covers for the top carrying side to decrease the amount of dust generated. The lower return side of belt conveyors can be made with fabricated covers which reduce the dust generated and also collect any spilled material that would otherwise fall from the unit.

Enclosed belt conveyors are useful where dust containment and product isolation are priorities. Different from standard conveyors with covers attached, enclosed units feature an integrated cover which is part of the conveyor structure itself. These units offer the dust containment benefit of a screw conveyor without the risk of product degradation during the conveyance of the material. Available in carbon and stainless steel construction, units can be placed in both horizontal and inclined installations.

Material of ConstructionUnits can be built from carbon steel, various grades of stainless steel, aluminum and other alloys.Switches SwitchesSwitches inlcude zero speed switches, alignment switches and plug switches. The zero speed switch is usually tail mounted while an alignment switch is common at the center of units over 150 feet in length. Plug switches are used in discharge chutes to detect excessive material. CEMA B, C and D series idlers are available in 4", 5" and 6" diameter rolls set at 20°, 35° and 45° configurations. Other options include impact idlers, self training idlers and return idlers, along with specialized items such as impact beds. Available in a variety of cover thicknesses and compositions to handle material of varying sizes, abrasiveness and temperatures. Along with various base materials, there are multiple belt styles available for particular applications. The styles include standard flat, flat with surface profile, flat with cleats and flexible sidewall designs.CoversFormed fabricated covers are available in stainless, aluminum, painted carbon steel and galvanized carbon steel.DrivesThe style of the drive may be selected by the customer, with options such as shaft mounted reducers, direct drive and chain and sprocket arrangements as some of the possibilities.DischargeWith selection depending on the material being conveyed, UHMW, AR400, ceramic and other liners are available.Primary and secondary blade cleaners are available.Primary and secondary blade cleaners are available in a wide variety of styles and materials. Also available are brush cleaners and V-plows for special return belt cleaning applications.	B	ELT CONVEYOR OPTIONS
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BELT CONVEYOR ENGINEERING

C	APACITIE	ES (CFH) V	VITH 20° 7	TROUGHE	ED BELT A	T 100 FPN	1
Belt Width	0° S.A.	5° S.A.	10° S.A.	15° S.A.	20° S.A.	25° S.A.	30° S.A.
18"	537	653	769	886	1,005	1,128	1,254
24"	1,041	1,258	1,477	1,698	1,924	2,155	2,394
30"	1,708	2,060	2,414	2,772	3,137	3,511	3,897
36"	2,538	3,057	3,579	4,107	4,645	5,196	5,765
42"	3,533	4,250	4,972	5,703	6,447	7,210	7,997
48"	4,691	5,640	6,594	7,560	8,544	9,552	10,592

CAPACITIES (CFH) WITH 35° TROUGHED BELT AT 100 FPM							
Belt Width	0° S.A.	5° S.A.	10° S.A.	15° S.A.	20° S.A.	25° S.A.	30° S.A.
18"	864	964	1,066	1,169	1,274	1,381	1,492
24"	1,668	1,857	2,048	2,241	2,438	2,640	2,847
30"	2,733	3,039	3,346	3,658	3,975	4,300	4,636
36"	4,058	4,508	4,961	5,419	5,886	6,364	6,857
42"	5,644	6,266	6,891	7,524	8,169	8,830	9,511
48"	7,491	8,312	9,138	9,974	10,825	11,698	12,598

S.A. = Surcharge Angle of material (angle to the horizontal assumed by the surface of a material at rest on a moving belt, ranges from 0 to 20 degrees below the angle of repose). Refer to the Material Characteristics page in the back for approximate S.A. values.

RECOMMENDED MAXIMUM BELT SPEED			
Material Being Conveyed	Belt Speeds (FPM)	Belt Width	
	500	18	
Croin on other non chroning from flowing motorial	700	24-30	
Grain of other non-abrasive free howing material	800	36-42	
	1,000	48-60	
	400	18	
Coal, damp clay, fine crushed stone	600	24-36	
	800	42-60	
Foundry sand (prepared or damp)	350	18-60	
Non-abrasive materials when discharged from belt by a plow	200	18-60	
Fine non-abrasive or mildly abrasive materials when belt conveyor fed from hopper	20-100	18-60	

MATERIAL CHARACTERISTICS

Material Description	Density PCF	Angle of Repose	Material Description	Density PCF	Angle of Repose
Adipia Agid	45	repose	Granita Finas	80.00	20-29
Aupic Acia	43	22	Granhite, Files	00-90	20-27
Alumina Sized or Pricuette	55-05	22	Graphite, Flour	20 65 75	
Aluminum Onida	60.120	20	Graphite, Ole	03-73 55 60	
Aluminum Oxide	60-120	29	Gypsun, Calcined	55-00	
Aluminum, Ore See Bauxite	25 15	45	Gypsum, Calcined, Powdered	60-80 70 80	
Asnes, Coal, Dry - 1/2	55-45	45	Gypsun, Raw - 1	/0-80	
Bagasse	/-10	43	Hops, Spent, Dry	33	
Baking, Powder	40-55		Hops, Spent, wet	50-55	25
Baking, Soda	40-55	45	Iron Ore, Concentrate	120-180	55
Bark, Wood, Refuse	10-20	45	Iron Oxide Pigment	25	25
Barley, Fine Ground	24-38	23	Kaolin Clay	63	35
Barley, Malted	31	23	Kaolin Clay, Tale	42-56	20
Bauxite, Crushed - 3"	75-85	30-44	Lead Ore, -1/2"	180-230	30
Bauxite, Dry, Ground	68	31	Lead Ore, -1/8"	200-270	30
Bentonite - 100 Mesh	50-60	42	Lead Oxide, -100 Mesh Red Lead	30-150	45
Bentonite, Crude	34-40	42-44	Lead Oxide, -200 Mesh Red Lead	30-180	45
Borax, Fines	45-55		Lime, Ground, Unslaked	60-65	43
Brewer's Grain, Spent, Dry	14-30	45	Lime, Hydrated	40	40
Brewer's Grain, Spent, Wet	55-60	45	Lime, Hydrated, Pulverized	32-40	40
Calcium Carbide	70-90	30-44	Lime, Pebble	53-56	30
Calcium Carbonate See Limestone			Limestone, Agricultural	68	30-44
Calcium Hydrate See Lime, Hydrated			Limestone, Crushed	85-90	38
Calcium Phosphate	40-50		Limestone, Dust	55-95	
Calcium Sulfate See Gypsum			Manganese Ore	125-140	39
Carbon, Black, Pelleted*	20-25	25	Paper, Pulp4%	62	19
Carbon, Black, Powder*	*	30-44	Paper, Pulp, 6% to 15%	60-62	19
Cement Aerated Portland	60-75		Phosphate Rock Pulverized	60	40
Cement Clinker	75-95	30-44	Polyvinyl Chloride Pellets	20-30	
Cement Mortar	133	20	Polyvinyl Chloride, Powder	20-30	
Cement Portland	9/	30-44	Salt Dry Coarse	45-60	
Charcoal Ground	18.28	35	Salt Dry Fine	70.80	25
Charcoal Lumps	18 28	35	Sand Dry Bank Damp	110 130	45
Clay (Pontonita Fuller's Forth Kapila)	60.80	35	Sand Dry Bank, Damp	00 110	35
Clay (Bentonne, Funer's Earth, Kaohh)	60.75	35	Sand Eoundry Shake Out	90-110	30
Clay, Dry, Lumpy Clinker, Coment See Coment, Clinker	00-75	55	Sand, Foundry, Shake Out	90-100	20.20
Cool Anthropite Culm and Diver	55 61	25	Sanu, Sinca, Dry	90-100	20-29
Coal Anthropite Sized 1/2"	40.61	33 27	Sawuust, DTy Slag, Blact Errmann, Crushad	10-15	25
Coal, Anthracite, Sized - 1/2	49-61	21	Slag, Blast Furnace, Crushed	130-180	23
Coal, Bituminous, Mined	40-60	45	Slag, Furnace, Granular, Dry	60-65	23
Coal, Bituminous, Mined, Sized	45-55	33	Sludge, Sewage, Dry	40-50	
Coal, Bituminous, Mined, Slack	43-50	40	Sludge, Sewage, Dry, Ground	45-55	
Coal, Lignite	37-45	38	Soap, Detergent	15-50	
Cocoa, Powdered	30-35		Soap, Powder	20-25	22
Coffee, Ground, Dry	25		Soda Ash, Heavy	55-65	32
Coffee, Ground, Wet	35-45		Soda Ash, Light	20-35	37
Coke, Breeze	25-35	30-44	Sodium Bicarbonate See Baking Soda		
Coke, Loose	25-35	30-44	Sodium Borate See Borax		
Coke, Petrol, Calcimined	35-45	30-44	Sodium Carbonate See Soda Ash		
Cullet, Fines	80-120	30-44	Sodium Chloride See Salt		
Cullet, Lumps	80-120	30-44	Sodium Phosphate	50-60	37
Detergent See Soap, Detergent			Starch	25-50	24
Diatomaceous Earth	11-17	30-44	Sugar, Refined, Granulated, Dry	50-55	30-44
Distiller's Grain, Spent, Dry	30		Sulphur, Powdered	50-60	30-44
Distiller's Grain, Spent, Wet	40-60		Talcum, Powder	50-60	
Dolomite, Crushed	80-100	30-44	Tobacco, Scraps	15-25	45
Feldspar, Ground	65-80	30-44	Urea Prills, Coated	43-46	
Flue Dust, Blast Furnace	110-125	20	Wood, Chips, Screened	10-30	45
Flyash	30-45		Wood, Flour	16-36	
Fuller's Earth, Dry, Raw	30-40	23	Wood, Shavings	8-16	
Fuller's Earth, Oily, Spent	60-65	20-29	Zinc Oxide, Heavy	30-35	45-55
Gilsonite	37		Zinc Oxide, Light	10-15	45
Glass, Batch	80-100	0-10	Zinc, Concentrate, Residue	75-80	

* Data listed is presented as a guideline and should be verified prior to use

* To determine surcharge angle (S.A.) of a material use the table to the right

* For materials not on list please contact us to review application

Angle of Repose	Surcharge Angle
0°-19°	5°
20°-29°	10°
30°-34°	20°
35°-39°	25°
40° and up	30°

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Name Company Address	Phone Fax E-Mail
Inquiry Data O Firm Price (Requires 7-14 Days) O Budget Price +/- 10% Type of Equipment O Screw Conveyor O Bucket Elevator O Belt Conveyor O Other	Length / Height O Centerline to Centerline O Overall Angle of Incline Drive Motor O Yes O O Yes O DNo O Explosion Proof
Requested Schedule Quote Due (/ /) Order Placed (/ /) Delivery (/)	Material of Construction O Mild Steel O Stainless Steel (Type) O Other)
Material to be Conveyed Material Density Size Femperature Moisture	Capacity TPH Required PPH CFH
Equipment Fed By	

Manufacturers of: Screw Conveyors Bucket Elevators Belt Conveyors

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